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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Lutz Lohmann

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EXAMINER

REKSTAD, ERICK J

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/702,093	Applicant(s) LOHMANN, LUTZ	
	Examiner ERICK REKSTAD	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7,9,13-16,18,19 and 23-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7,9,13-16,18,19 and 23-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is a Non-Final Office Action for Application no. 10/702,093 in response to the After-Final Amendment entered on September 9, 2008. The indicated allowable subject matter has been withdrawn in light of the current prior art and additional prior art found in the Examiner's search.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 9, 13-16, 18, 19, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over International Publication WO 02/073086 A1 to Honeywell in view of US Patent 3,010,024 to Barnett et al. in further view of US Patent 6,678,635 to Tovinkere et al.

[claims 7 and 9]

As shown in Figure 3, Honeywell teaches a device for monitoring an area of coverage around a working tool (Page 7 Lines 4-20). Honeywell further teaches an embodiment of the safety camera system in Figure 13. The device comprises a camera (10 of Fig. 3) and a computer unit (500 of Fig. 13) that is coupled to the camera and a switching output (520 and 530 of Fig. 13). The switching output having means integrated into the computer for storing and classifying a reference background. The reference background is an image recorded with the camera of an object-free security

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zone within the area of coverage (Page 7 Lines 10-20, Page 16 Lines 10-19).

Honeywell further teaches the use of multiple cameras and computer units in order to increase reliability (Page 16 Line 31-Page 17 Line 12).

Honeywell further discloses a means for checking the reference background with respect to non-homogeneity, wherein the reference background is rejected as non-valid only if the non-homogeneity detected within a predetermined variance distance falls below a predetermined level and the reference background is otherwise classified as valid (Page 26 Lines 3-11, Page 30 Lines 4-6 and Page 3-16). Note, it is viewed by the Examiner that the means of Honeywell contains a predetermined level as Honeywell selects the mode based on the contrast level.

The device further comprises the means integrated into the computer for releasing an object detection system in dependence on the classification of the reference background (Page 21 Lines 25-28 and Page 22 Lines 12-27, Fig. 17).

The device further comprises the means integrated into the computer for comparing actual images of the security zone, recorded with the camera and a reference background classified as valid. A detection of a safety-critical object within the security zone occurs if the actual image differs significantly from the reference background and wherein the working tool is activated via the switching output that is triggered by the computer unit, but only if no safety-critical object is located within the security zone (Page 8 Lines 12-20, Page 13 Lines 15-18 and Page 13 Line 31-Page 14 Line 2, Page 14 Lines 15-21).

As shown in Figure 17, Honeywell teaches the use of a binary control signal having switching states of which indicate whether the existing reference background is classified as value or non-valid (Page 21 Lines 25-31, Page 22 Lines 12-19). Figure 17 further shows the object detection system is released or blocked in dependence on the switching states of the binary control signal (Page 22 Lines 15-27). Honeywell is silent on the use of two cameras which form a redundant camera system using a beam divider and the two computer units have different software structures.

As shown in Figures 1 and 2, Barnett teaches a detection system using a beam divider (28) in addition to two cameras (10 and 11) to provide a redundant system (Col 3 Lines 55-60 and Lines 70-74, Col 4 Lines 15-21 and Line 55-71, Col 5 Lines 5-53). Note, Barnett teaches each camera has an associated independent computer unit (Col 1 Line 71-Col 2 Line 5). Barnett teaches the benefit of the system is that it provides an accurate and rapid means for detecting and tracking high speed moving objects (Col 1 Lines 9-12 and Lines 16-18). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the camera system of Barnett with the detection system of Honeywell in order to provide an accurate and rapid means for detecting. Barnett is silent on the independent computer units having different software structures.

As shown above, Honeywell and Barnett teach the use of multiple cameras with corresponding computer units. Honeywell further teaches the use of multiple cameras with corresponding computer units in order to increase reliability (Page 16 Line 31-Page 17 Line 5). As shown in Figure 7, Tovinkere teaches the detection of an event using equivalent hardware with different event detection methods (Col 7 Line 50-Col 8 Line

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21). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the multiple event detection methods of Tovinkere with the device of Honeywell and Barnett in order to further improve the overall detection as taught by Tovinkere (Col 8 Lines 4-21).

[claims 13 and 14]

As shown for claims 7, Honeywell teaches the system provides a switching output and indicator output. Honeywell further teaches each computer providing an indication for actuating a switching output (Page 16 Line 31-Page 17 Line 12). As indicated above, it would have been obvious to modify the system of Honeywell with the multiple processing units of Barnett in order to provide an accurate and rapid means for detecting. Since the modification would only modify the processing such as the process 790 of Figure 17, the system as a whole still actuates the switching output and activates the indicator output. Thus the switching and indicator outputs are controlled by both computer units.

[claim 15]

Honeywell suggests the use of several types of cameras (Page 15 Lines 6-7). It is noted by the Examiner that all cameras operate in at least the same way in that the result of all cameras is an image of area captured by the camera. Barnett teaches the cameras are identical or at least operate in the same way (Col 3 Lines 70-75). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the camera system of Barnett with the detection system of Honeywell in order to provide an accurate and rapid means for detecting.

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[claim 16]

Honeywell suggests the use of multiple computer units (500, Fig. 13) which are identical (Page 16 Line 31-Page 17 Line 12). As shown in Figures 1 and 2, Barnett also teaches the two computer units have identical hardware structures (Col 4 Line 40-Col 5 Line 75). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the camera system of Barnett with the detection system of Honeywell in order to provide an accurate and rapid means for detecting.

[claim 18]

Honeywell teaches the storing of the reference image in each computer unit and checking the reference for non-homogeneity (Page 15 Line 16 and Lines 23-30). Barnett further teaches each computing unit stores the reference background (Col 5 Lines 5-37). Note, the differential amplifiers subtract the background from the video signal, thus the reference background is stored long enough to perform this action. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the camera system of Barnett with the detection system of Honeywell in order to provide an accurate and rapid means for detecting.

[claim 19]

As shown above, the system of Honeywell provides the ability to release the object detection system via the binary control signal (Page 22 Lines 15-27, Fig. 17). Since the modification with Barnett would only modify the processing such as the process 790 of Figure 17, the system as a whole still actuates the switching output.

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Thus, the binary control signal releases the object detection system only if the reference background in both computer units is classified as valid.

[claim 23]

As shown in Figures 15 and 16, Honeywell teaches the use of the system wherein the machine is allowed to run only when both the border and interior analysis functions provide safe outputs (Page 17 Line 30-Page 18 Line 7 and Page 21 Line 15-18). Thus Honeywell teaches the working tool is shut down if the computer units do not coincide.

[claim 24]

Honeywell further teaches the working tool is shut down via the switching output if image characteristics assigned to a safety-critical object located in the security zone are detected jointly in both computer units (Page 16 Lines 10-19, Page 17 Lines 3-5).

Claims 25-38 rejected under 35 U.S.C. 103(a) as being unpatentable over International Publication WO 02/073086 A1 to Honeywell in view of US Patent 3,010,024 to Barnett et al. in further view of US Patent 6,678,635 to Tovinkere et al., as applied to claim 7, in view of US Patent Application Publication 2001/0041077 A1 to Lehner et al.

[claim 25]

As shown above, Honeywell, Barnett and Tovinkere teach the requirements of claim 7. Honeywell, Barnett and Tovinkere do not teach the use of a warning zone in addition to the security zone.

As shown in Figure 3, Lehner teaches the use of a warning zone (8) in addition to the security zone (7) (Paragraphs [0051]-[0052]). Lehner further teaches a warning indicator is activated via a warning output if a safety-critical object is located in the warning zone (Paragraphs [0052]-[0054]). Lehner teaches the benefit of a warning zone is to warn a user before entering a security zone (Paragraph [0053]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Honeywell, Barnett and Tovinkere with the warning zone of Lehner in order to warn a user before entering the user enters a security zone as taught by Lehner (Paragraph [0053]).

[claim 26]

As shown in Figure 3, the warning zone (8) is adjacent to the security zone (7) (Paragraph [0051]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Honeywell, Barnett and Tovinkere with the warning zone of Lehner in order to warn a user before entering the user enters a security zone as taught by Lehner (Paragraph [0053]).

[claim 27]

Lehner further teaches the reference background comprises the security zone and the warning zone (Paragraph [0039], [0050], and [0081]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Honeywell, Barnett and Tovinkere with the warning zone of Lehner in order to warn a user before entering the user enters a security zone as taught by Lehner (Paragraph [0053]).

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[claims 28 and 29]

Lehner further teaches the detection of the movement direction of the safety-critical object within the warning zone can be detected and the warning indicator is activated only if a safety-critical object is located within the warning zone and moves towards the security zone (Paragraph [0054]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Honeywell, Barnett and Tovinkere with the warning zone of Lehner in order to warn a user before entering the user enters a security zone as taught by Lehner (Paragraph [0053]).

[claims 30 and 31]

Lehner further teaches several security zones and warning zones are respectively provided, wherein tone switching output is assigned respectively to a respective security zone and a warning output is assigned to each respective warning zone (Paragraph [0055]). Lehner further teaches shutting down the working tool if a safety-critical object is located in at least one security zone (Paragraph [0056]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Honeywell, Barnett and Tovinkere with the warning zone of Lehner in order to warn a user before entering the user enters a security zone as taught by Lehner (Paragraph [0053]).

[claims 32-38]

Honeywell teaches the working tool may be hazardous equipment, raw materials processors, or any other machine that could present a danger to a person (Page 5 Line

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32-Page 6 Line 9). Honeywell is silent on the working tool being a robot, printing machine, feeding device, press or folding press.

Lehner teaches the working tool is a robot (Paragraph [0034]). Lehner further teaches the working tool is a printing machine (Paragraph [0031]). Lehner further teaches the working tool is a folding press, thus satisfying the requirements of claim 35 and 36 (Paragraph [0002]). Lehner teaches the press is feed by the operator thus satisfying the requirements for a feeding device (Paragraph [0037]). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the system of Honeywell, Barnett and Tovinkere with a robot, printing machine, feeding device, press or folding press as Lehner teaches all of them as working tools.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERICK REKSTAD whose telephone number is (571)272-7338. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erick Rekstad/
Examiner (Partial Signatory Authority), Art Unit 2621

/Gims S Philippe/
Primary Examiner, Art Unit 2621